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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,311	08/20/2004	Hiroshi Nishimura	13006.104	5421

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EXAMINER	
WYROZEBSKI LEE, KATARZYNA I	
ART UNIT	PAPER NUMBER
1714	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/505,311	NISHIMURA ET AL.	
	Examiner	Art Unit	
	Katarzyna Wyrozebski	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-13 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 8/20/04;3/31/05.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 5-8, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by OBUCHI (US 5,916,950).

The prior art of OBUCHI discloses resin composition for molded article comprising polylactic acid (PLA) in mixture with aliphatic polyester. The object of the invention is to provide composition having mixed polymers wherein Tg of the polyester is low, has quick crystallization velocity and good thermal resistance.

Polylactic acid of OBUCHI is a polymer having melting point between 100-250°C. Although the optical purity is not specifically mentioned, the prior art of OBUCHI teaches mixtures of the two monomers. Examples disclose using just one lactic acid monomer, with will

render the polymer at least semi-crystalline. This further signifies that the optical purity of such polymer is about 100%. OBUCHI also indicates that D-lactic monomer can be also utilized. The minimum optical purity is 75%. The molecular weight of the PLA in OBUCHI is in a range of 50,000-300,000, which is within the same bounds as the PLA of the present invention. Manny properties of the PLA composition depend on molecular weight and its optical purity. Such properties include crystallinity, heat of fusion, crystallization and the like. These properties are considered to be inherent to the above PLA polymer. In fact it is stated in the disclosure of OBUCHI that crystallinity is a requirement for PLA composition disclosed therein.

Polyester of OBUCHI is aliphatic polyester, which has low molecular weight polyester. If polyester has high Tg it will affect injection molding process. The ratio of PLA to polyester is mostly 75 to 25, however 55:45 and 70:30 are also disclosed. Specification allows broader ratios.

Inorganic filler as utilized in examples is talc. Although the particle size is not disclosed the FUJI Talc Ind. Co. Ltd. Produces talc that have average particle size in a range of 1-10 microns. The evidence can be found on the company's website or in disclosure of IKADO cited in this office action. The two talcs utilized in OBUCHI have average particle size of approximately 2.2 microns. The amount of talc is 5 % by weight or more. Examples show increments of 5. The prior art of OBUCHI does not call talc a nucleating agent, however; such is an inherent property of this compound. The courts have held that "a compound and all its properties are mutually inseparable", *In re Papesch*, 315F.2d 381, 137 USPQ 42, 51 (CCPA 1963). Further, attention is drawn to MPEP 2112.01, which states "products of identical chemical composition can not have mutually exclusive properties. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure,

the properties applicant discloses and/or claims are necessarily present.", *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the process of OBUCHI comprises step of mixing polymers at melt temperatures and incorporating talc into the mixture. Next the composition is extruded into a sheet. Articles formed from the sheet are formed by vacuum forming when the sheet is heat softened and slowly adhered to the mold by evacuating the space between the sheet and mold. The mold is kept at a low temperature of 0-40°C. The temperature at which the sheet is treated depends on the softening point of the composition. The softening temperature of the composition is above 110°C as shown in examples. Specification covers temperatures of up to 130°C. The time limitation utilized to soften the composition would also be dependant on the properties of the polymers and components incorporated therein. Since components of OBUCHI encompass the components of the present invention including molecular weights and purity then the amount of time required to soften the composition will also lie within the bounds of the present invention.

In the light of the above disclosure, the prior art of OBUCHI anticipates requirements of claims rejected above.

3. Claims 1-13 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by TANAKA (JP 2003-068387).

The translation of the prior art of TANAKA can be found in US PG Publication 2006/0148969). Although the prior art of TANAKA can be overcome by the translation, it will be applicable as a reference in an interference.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 2, 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over OBUCHI (US 5,916,950) in view of TERADA (US 6,326,440).

The discussion of the disclosure of prior art of OBUCHI from paragraph 2 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of OBUCHI is recitation of the glass transition temperature of the aliphatic polyester.

With respect to the above difference, the prior art of TERADA discloses similar composition comprising polylactic acid and aliphatic polyester to make various types of films having good flexibility transparency and shock resistance.

Weight average of the polyester of the prior art of TERADA is in a range of 20,000-300,000 and it is formed from the same monomers utilized in the disclosure of OBUCHI.Glass transition temperature of the aliphatic polyester is preferably below 0°C. Polyester having properties outside of that range impair various aspects of the composition such as miscibility with PLA, it will result in high melt viscosity, poor tensile elongation brittleness, crystallization and the like.

Addition of aliphatic polyesters benefits polylactic acid composition in that it speeds up crystallization time, good molding properties resulting in less brittle articles. Such articles have to use polyesters with lot Tg such as those in OBUCHI and TERADA.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize polyesters of TERADA in the composition of OBUCHI and thereby obtain the claimed invention. Utilizing polyester of

TERADA would still provide moldable composition suitable for extrusion and sheet or film molding.

8. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over OBUCHI (US 5,916,950) in view of IKADO (US 5,766,748).

The discussion of the disclosure of prior art of OBUCHI from paragraph 2 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of OBUCHI is recitation of additives.

The additives in the PLA based film compositions in addition to inorganic fillers comprise lubricants, dispersants and the like. Compounds such as erucamide, stearamide, oleamide, ethylenebisstearamide and the like are knows as both lubricants and dispersants for PLA compositions.

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art to utilized above mentioned amide compounds of IKADO in the disclosure of OBUCHI for ftwo reasons. One is that the prior art of OBUCHI clearly envisaged or otherwise suggested use of lubricants in the composition. Second, is that these compounds act as dispersants, therefore more homogeneous mixture would be formed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski whose telephone number is (571) 272-1127. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Katarzyna Wyrozebski
Primary Examiner
Art Unit 1714

January 23, 2007